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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/707,268

12/02/2003

Melvin Harper

1267

7590

03/08/2006

Melvin Harper
7280 Turkey Creek Rd
Lihleto, CO 80125



EXAMINER

COOLMAN, VAUGHN

ART UNIT

PAPER NUMBER

3618

DATE MAILED: 03/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/707,268	Applicant(s) HARPER ET AL.	
	Examiner Vaughn T. Coolman	Art Unit 3618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION***Information Disclosure Statement***

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered. The reference in question is SI9700021 recited in paragraph 0012, line 7. The reference has been considered by the examiner.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "sidewalls being curved surfaces that are convex upward" (claim 1, lines 15-16) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must

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be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because of the inclusion of legal phraseology and phrases which can be implied. The term "said" is recited in line 2 of the abstract and the phrase "this invention provides" is recited in line 1. Examiner respectfully suggests deleting the phrase "this invention provides" and begin the abstract with "A riser for an alpine ski . . .".

Additionally, the word "said" should be replaced with the word "the". Correction is required.

See MPEP § 608.01(b).

Claim Objections

Claim 1 is objected to because of the following informalities: Claim 1 is written in two sentences. Is claim 1 supposed to be two separate claims or just one? As best understood by the examiner, the claim is intended to be singular. Examiner respectfully suggests editing line 10 to read "times that at the shovel and tail; and" rather than as currently recited with a period immediately following the word tail. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claims are replete with subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The following list of examples is not exhaustive but it is indicative of the claims as a whole.

A. claim 1, lines 9-10: the thickness of the basal section at the waist varying from 2-3 times that at the shovel and tail is not mentioned in the specification.

B. claim 1, lines 21-22: the equation recited in the claim is not present in the specification, nor is any derivation of the equation described.

C. claim 2, lines 1-2: the range recited in the claim of 70 thru 85 degrees is not supported in the specification. In fact, this range is in direct contrast with the specification. Paragraph

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0027, lines 13-15 state “angle alpha is a critical angle and in **ALL** [emphasis added] embodiments should preferentially be 75 degrees or more.”

The specification should be rewritten to provide enablement for the subject matter set forth in the claims.

NO NEW MATTER should be entered.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claims are replete with indefinite limitations. The following list of examples is not exhaustive but it is indicative of the claims as a whole.

A. claim 1, lines 12-13: the boot fixation area being “intermediate in elongate extent” is indefinite due to the unconventional manner in which the location is described. Examiner respectfully suggests that a more conventional claim limitation describing the location of the boot fixation area would be appropriate.

B. claim 1, lines 24-26: the description of side cut measurement is indefinite. The term side cut is well known and conventional in the art of ski manufacture. However, the description, especially the limitation of “a vertical plane tangent to the ski at the shovel and the heel”, renders the term side cut indefinite. The description is only applicable when the ski is resting on its bottom surface. If the ski were resting on its side surface, then the vertical plane could still be tangent to the ski at the shovel and the heel, but the side cut would then be measured into the

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bottom surface of the ski. Examiner respectfully suggests either deleting the description or changing the description of the term side cut to read more clearly. For example, the description of the angle alpha immediately following the side cut description is clear and definite.

C. claim 4, line 2: the phrase “a segment of the arc of a circle” is redundant and indefinite. An arc is a segment of a circle. However, reciting “the arc” implies that there is only one arc of a circle when in fact there are an infinite number of arcs in a circle. Examiner respectfully suggests changing the term to read “a segment of a first circle”. Furthermore, the term “similar conic section” is indefinite. The specification does not indicate or mention which conic sections are similar to a circle. Examiner respectfully suggests changing the term to read “a segment of a first circle having a radius of . . .”.

The claims should be rewritten in order to provide clarity for each structural and functional limitation recited.

NO NEW MATTER should be entered.

Claims 1-6 are rejected as failing to define the invention in the manner required by 35 U.S.C. 112, second paragraph.

The claim(s) are replete with terms lacking antecedent basis. The following list of examples is not exhaustive but it is indicative of the claims as a whole.

A. claim 1, line 11 – “the riser”. Examiner respectfully suggests changing the claim to read “an upper section, or riser, having . . .”

B. claim 1, line 24 – “the side cut”. Examiner respectfully suggests changing the claim to read “a side cut”

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C. claim 3, line 4 – “the skier”. Examiner respectfully suggests changing the claim to read “a user” or “a skier using the ski”

D. claim 4, lines 2 and 5 – “the arc”

E. claim 6, line 1 – “the sides”. Examiner respectfully suggests changing the claim to read “the sidewalls” as positively recited in claim 1.

The claims should be rewritten in order to provide antecedent basis for each limitation.

NO NEW MATTER should be entered.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claim 3 is rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claim limitation of “expected combined angle comprising slope angle and the angle of angulation of the ski by the skier”. Examiner respectfully suggests that this “expected combined angle” would not be predictable or repeatable due to the changing slope angle on most mountains or ski runs and the skier’s estimation of his angle of angulation. As best understood by the examiner, angle of angulation is the angle formed between the plane of the bottom surface of the ski and the plane of the skiing surface. However, angle of angulation is not defined by the applicant.

Claim Rejections - 35 USC § 103

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The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Harper et al (U.S. Patent No. 5,303,949).

[**claim 1**] As best understood by the examiner, Harper discloses an alpine ski (shown in FIGS 1-8), one of an identical pair, comprising:

(a) a basal section having:

(i) a shovel (15) at the front end and a heel (11) at the tail end;

(ii) a bottom surface (14) and a top surface (the horizontal plane parallel to and offset from the bottom surface of the ski – the distance of the offset being equal to the vertical height of first edges 12 and 12’);

(iii) vertical longitudinal sidewalls whose intersection with the bottom surface of the ski form first edges (12, 12’) on each side of the bottom of the ski;

Harper does not teach a [basal] thickness T_B which at the waist ranges from 2 to 3 times that at the shovel and tail. However, it is old and well known in the art to provide a thickness dimension of the waist section greater than the thickness of the shovel and tail, as admitted by the applicant (Paragraph 0016, lines 1-2). The specific ratio of thickness dimensions would have been obvious to one having ordinary skill in the art at the time the invention was made, since the general conditions of the claim have been admitted by the applicant to be of a conventional

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nature, and it has been held that discovering the optimum or workable ranges involves only routine skill in the art. Harper also discloses;

(b) an upper section termed the riser having:

(i) a top surface (shown in FIGS 2-6) with a boot fixation area intermediate in elongate extent and a bottom surface (coplanar with the top surface of the basal section's top surface as described above) that overlies said basal section between said shovel and said heel (Column 3, lines 30-43);

(ii) sidewalls (16) on each side, said sidewalls being curved surfaces that are convex upward (Column 3, lines 26-28), said surfaces having a uniform curve from the front of the riser to the rear of the riser (Column 2, lines 30-40; this section refers to varying the type of curve built into the ski – as best understood by the examiner, this curve, hyperbolic, parabolic would be uniform in nature), and intersection of said riser sidewalls with the top [surface] of the riser forming second edges (13 and 13') on each side of the top of the ski. Examiner is interpreting the claim terminology of "top" and "surface" reasonably broad as top being the upper end, edge, or surface as defined by Merriam-Webster's 10th edition and surface as being the exterior or upper boundary of an object or body as defined by the same dictionary; Harper also shows

(iii) a [riser] thickness T_R given by the equation $[(SC_1 - SC_2)\tan \alpha - T_B]$ wherein SC_1 is the side cut of the first edges of the ski, measured perpendicularly from a vertical plane tangent to the ski at the shovel and heel, SC_2 is the side cut of the second edges of the ski, measured perpendicularly from a vertical plane tangent to

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the ski at the shovel and heel, Alpha is the smaller of the two [supplementary] angles formed by an edge line drawn tangent to the first edge and second edge, and a surface line drawn parallel to the bottom surface, said edge and surface lines being in a common vertical plane, said vertical plane being perpendicular to the longitudinal axis of the ski.

This limitation comes directly from claim 5 of the Harper reference. When combined with the admission that varying the thickness of the basal section is conventional, it would be obvious for one of ordinary skill in the art to compensate the distance between the first and second edges by subtracting the basal section thickness T_B . The reason one of ordinary skill would come to this conclusion, is that subtracting the varying basal thickness would be the only way to obtain proper separation between the second edge and the slope while keeping the angle alpha constant along the length of the riser, of paramount importance as disclosed by the applicant in both the instant application (Paragraph 0017, lines 6-10) and the reference patent (Column 3, lines 54-58). Furthermore, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

[claim 2] Harper fails to explicitly disclose angle alpha as being between 70 and 85 degrees. However, in the disclosure, the preferred embodiment has an angle alpha of 52 degrees. As best understood by the examiner, the reasoning set forth for the specific value of angle alpha is to allow or prevent second edge contact with the slope (Column 3, lines 45-54) at various theta angles (a function of slope plus angulation angles). The example in the Harper renders it obvious to change the alpha angle in order to prevent second edge contact depending on the slope angle. It would have been obvious to one having ordinary skill in the art at the time the

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invention was made to modify the ski shown by Harper with a larger angle α , between 70 and 85 degrees since such a modification would provide the advantage of being able to ski on slopes greater than 52 degrees (70-85 degrees for example) without experiencing second edge contact with the slope. Furthermore, it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

[claim 3] Harper further discloses angle α being related to the expected combined angle comprising slope angle and the angle of angulation of the ski by the skier as described in re claim 2.

[claim 4] Harper further discloses in claim 2 side cuts of the first edges (12, 12') reproducing a segment of the arc of a circle or similar conic section with principal radius of 10 to 25 meters (35[10.67m] – 50[15.24m] feet) and side cuts of the second edges (13, 13') reproducing a segment of the arc of a circle or similar conic section with principal radius of 30 to 50 meters (100[30.48m] – 200[60.96m] feet). The ranges of principal radii not covered in claim 2 of the Harper reference are still within the scope of the invention as evidenced by the disclosure (Column 4, lines 24-27; Column 2, lines 30-40). Hyperbolic curves disclosed by Harper are taken by the examiner as being conic sections similar to a circle. The variation in depth of side cut is taken as implying varying principal radii, as this would be the easiest way to vary side cut depth. Furthermore, it has been held that discovering an optimum value of a result effective variable, such as the radii described above, involves only routine skill in the art.

[claim 6] Harper further shows the sides of the riser are surfaces cut at a constant angle β , β being the smaller of the two angles formed by an edge line (at surface 16) drawn tangent to the top and bottom of the riser, and a surface line drawn parallel to the bottom surface

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of the riser, said edge and surface lines being in a common vertical plane, said vertical plane being perpendicular to the longitudinal axis of the ski. While Harper does not explicitly disclose the range of between 55 and 70 degrees for the angle beta, when combined with the varying angle alpha as described in re claim 2, this range is well within the scope of the Harper invention, as beta is directly related to and must always be smaller than alpha as shown by Harper in FIGS 3-5.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Harper et al (U.S. Patent No. 5,303,949) in view of Karlsen (U.S. Patent No. 5,876,056).

[claim 5] Harper discloses all of the elements of the claimed invention as described above except for the relative dimensions of the widths of the top surfaces at the shovel, waist, and tail of the ski. Karlsen teaches an alpine ski wherein the width of the top surface at the shovel is between 1.4 and 1.45 times the width of the top surface of the ski at the waist, and wherein the width of the top surface at the heel is between 1.2 and 1.3 times the width of the top surface of the ski at the waist. The limitations are found in Table 2 of the disclosure of the invention. The waist width measurement of 60mm multiplied by 1.4 equals 84mm and multiplied by 1.45 equals 87mm. The maximum width at the shovel falls directly into this range at a value of 86.0mm. The waist width measurement of 60mm multiplied by 1.2 equals 72mm and multiplied by 1.3 equals 78mm. The maximum width at the tail falls directly into this range at a value of 74.0mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the ski shown by Harper with the width ratios as taught by Karlsen, since such a modification of discovering the optimum or workable ranges involves only routine skill in the art.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Petkov (U.S. Patent No. 5,405,161) teaches an alpine ski including various features of the instant application.

Minidis (U.S. Patent No. 5,083,810) teaches an alpine ski including various features of the instant application (see FIGS 8 and 9).

Beerli (U.S. Patent No. 2,510,794), Staufer (U.S. Patent No. 4,377,297), and Wilson (U.S. Patent No. 6,857,653 B2) teach an alpine ski including various features of the instant application.

Pogacar et al (SI9700021) teaches an alpine ski including various features of the claimed invention.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vaughn T. Coolman whose telephone number is (571) 272-6014. The examiner can normally be reached on Monday thru Friday, 8am-6pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christopher Ellis can be reached on (571) 272-6914. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Travis Coolman
03/02/06

Travis Coolman
Examiner
Art Unit 3618

vtc

Christopher P. Ellis

CHRISTOPHER P. ELLIS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3600

ELECTRONIC INFORMATION DISCLOSURE STATEMENT

Electronic Version v18

Stylesheet Version v18.0

Title of Invention

RISER FOR NARROW CARVING SKIS

Application Number :

Confirmation Number:

First Named Applicant: Melvin Harper

Attorney Docket Number:

Art Unit:

Examiner:

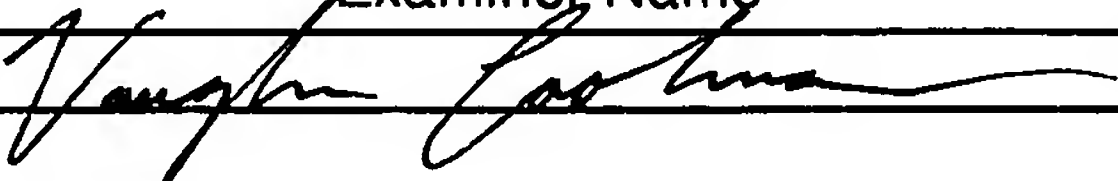
Search string: (5126086 or 5303949 or 5405161 or 5496053 or 5820154 or 6283493 or 6499759).pn

US Patent Documents

Note: Applicant is not required to submit a paper copy of cited US Patent Documents

init	Cite.No.	Patent No.	Date	Patentee	Kind	Class	Subclass
	1	5126086	1991-06-25	Guers, et al.		280	607
✓	2	5303949	1994-04-19	Harper, et al.		280	608
✓	3	5405161	1995-04-11	Petkov		280	609
✓	4	5496053	1996-03-05	Abondance		280	609
✓	5	5820154	1998-10-13	Howe		280	607
✓	6	6283493	2001-09-04	Arduin, et al.		280	617
✓	7	6499759	2002-12-31	DeBorde, et al.		280	602

Signature

Examiner Name	Date
	02/24/06

Notice of References Cited	Application/Control No. 10/707,268	Applicant(s)/Patent Under Reexamination HARPER ET AL.	
	Examiner Vaughn T. Coolman	Art Unit 3618	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-2,510,794 A	06-1950	LOUIS BEERLI	280/609
	B	US-4,377,297 A	03-1983	Staufer, Adolf	280/609
	C	US-5,083,810 A	01-1992	Minidis, James D.	280/608
	D	US-6,857,653 B2	02-2005	Wilson, Anton F.	280/602
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N	SI9700021A	08-1998	Slovenia	Pogacar et al	A63C 5/00
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

(19)



REPUBLIKA SLOVENIJA
Urad RS za intelektualno lastnino

(10) SI 9700021 A

(12)

PATENT

(21) Številka prijave: 9700021

(51) MPK⁸: A63C 5/00, A63C 5/052,
A63C 5/03

(22) Datum prijave: 31.01.1997

(45) Datum objave: 31.08.1998

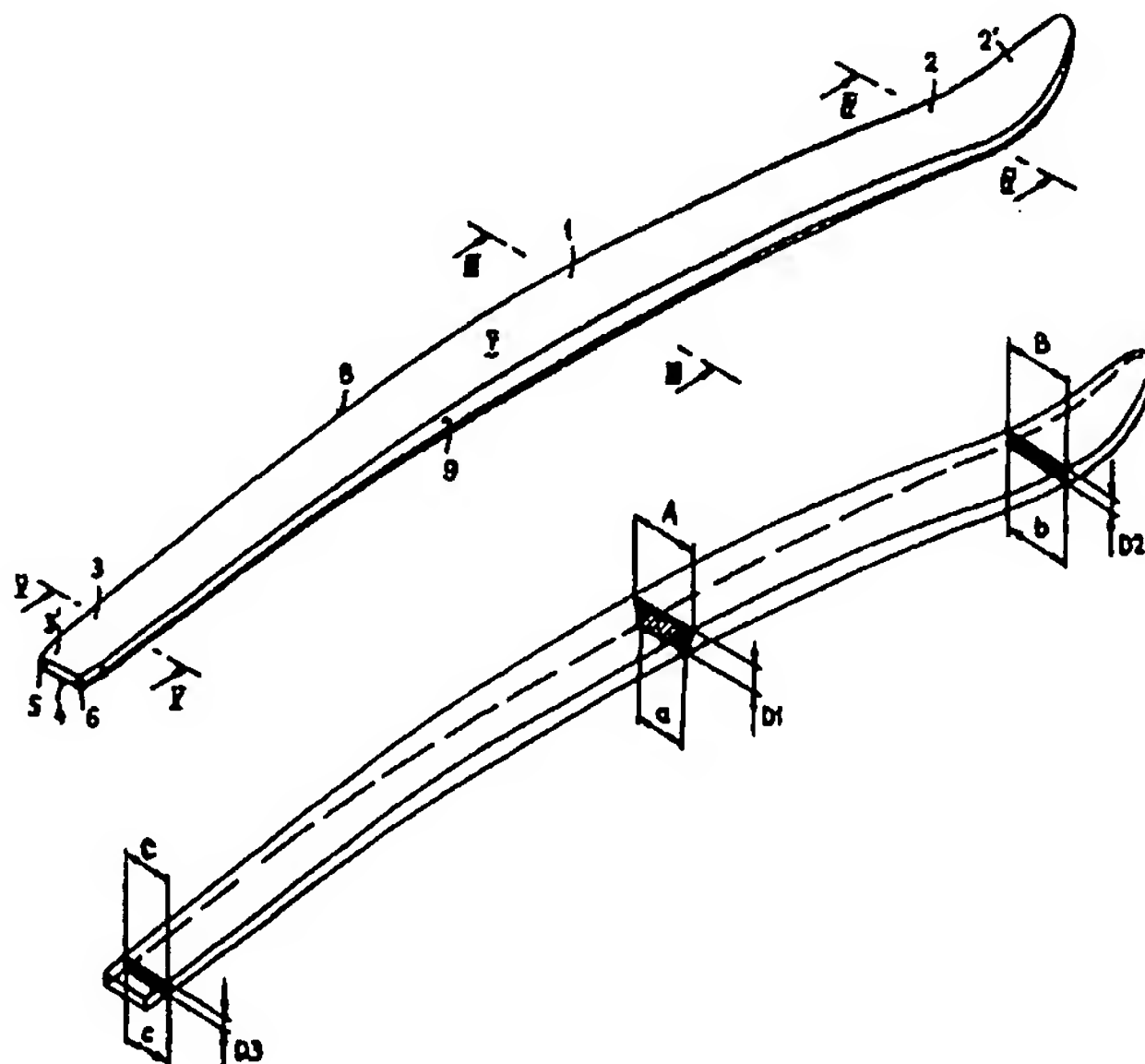
(72) Izumitelj: **POGAČAR TOMAŽ**, 1000 Ljubljana, SI;
RAVNIK JANEZ, 4260 Bled, SI;
VALENČIČ VALTER, 4275 Begunje na Gorenjskem, SI

(73) Nosilec: **ELAN LINE**, d.o.o., Begunje na Gorenjskem 1, 4275 Begunje na Gorenjskem, SI(74) Zastopnik: **DUŠAN BORŠTAR**, dipl.ing.str., Nova ulica 11, 1230 Domžale, SI

(54) SMUČKA ALI PODOBNA DRŠALNA PRIPRAVA

(57) Pričujoči izum temelji na problemu, kako pri smučki, prirejeni za v stroki obličen način pritrditve smučarskega čevlja na zgornji površini (7) v osrednjem delu (1) smučke in brez prigraditve vsakršnih dodatnih delov zagotoviti ustrezno usločenost robnikov (5, 6) v smislu realizacije tako imenovanega stranskega loka in torej doseči kar največjo razliko med širino (a) med robnikoma (5, 6) v osrednjem delu (1) in širinama (b oz. c) med robnikoma (5, 6) v prednjem delu (2) oz. zadnjem delu (3) ter pri tem zagotoviti karseda majhno torzijsko deformabilnost smučke, zlasti njenega prednjega dela (2) in zadnjega dela (3). Smučka ali podobna drsalna priprava je na spodnji, proti podlagi obrnjeni strani opremljena z drsno površino (4), ob kateri sta nameščena robnika (5, 6), na nasprotni strani oz. na zgornji površini (7) pa je na smučko s pomočjo na skici neprikazanih priprav, zlasti ustreznih smučarskih vezi, na ustrezen način pritrdljiv

prav tako neprikazan smučarski čevelj, in sicer v osrednjem delu (1) debeline (D1), v katerem mora biti vsaj na zgornji površini (7) na voljo zadostna širina (A) za omenjeno pritrditev. Razen tega pa je prednji del (2) debeline (D2) ter širine (B) na zgornji površini (7) in (b) v območju robnikov (5, 6), zlasti njegov skrajni konec (2'), ukrivljen v smeri vstran od podlage, medtem ko je zadnji del oz. rep (3) debeline (D3), širine (C) na zgornji površini (7) oz. (c) v območju robnikov (5, 6) prednostno zasnovan z zoženim skrajnim koncem (3'). Po izumu je tista širina (a) osrednjega dela (1) smučke ali podobne drsalne priprave, ki ustreza razdalji med robnikoma (5, 6) ob drsni površini (4) v osrednjem delu (1) smučke, manjša, prednostno celo bistveno manjša od širine (A) osrednjega dela (1) na zgornji površini (7) smučke, predvideni za pritrditev smučarskega čevlja na smučko s pomočjo ustreznih pritrdilnih sredstev, zlasti smučarskih vezi.



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Smučka ali podobna drsalna priprava

Izum se nanaša na smučko ali podobno drsalno pripravo, npr. takoimenovan *monoski*, takoimenovan *snowboard* in podobno. Tovrstne priprave so predvidene za drsenje po ustrezni podlagi, njihovo vodenje med zavojem pa je omogočeno z ustreznimi oblikovnimi in konstrukcijskimi lastnostmi tovrstnih priprav.

Tovrstne priprave so v splošnem zasnovane kot vitki, podolgovati nosilci vsaj v bistvu pravokotnega, razmeroma sploščenega prečnega prereza. Prednji del je ukrivljen v smeri vstran od podlage in na svojem skrajnem koncu tudi koničasto zaključen. Zadnji del, takoimenovan *rep*, je na svojem skrajnem koncu običajno zožen, ker pripomore k ustrezni vodljivosti smučke ali podobne priprave v določenih situacijah. Osrednji del je predviden za pritrditev vezi, torej ustreznih priprav za pritrditev ustreznega smučarskega čevlja na smučko ali podobno drsalno pripravo ter s tem vzpostavitev oz. zagotovitev ustrezne povezave med smučko in vsakokratnim uporabnikom.

Na spodnji, proti vsakokratni podlagi obrnjeni strani je na voljo ustrezno obdelana drsna površina, ob kateri sta nameščena robnika, potekajoča vsak po svoji strani omenjene drsne površine, in sicer vsak od njiju prednostno vzdolž celotne smučke, torej od prednjega dela do repa.

Smučka je zaradi ustreznega prenašanja uporabnikove teže v različnih situacijah med smučanjem, kot tudi zaradi stalno spreminjajoče se oblike podlage prednostno mostičena, torej usločena, kar pomeni, da je pri neobremenjeni, na ravno podlago položeni smučki njen osrednji del nekoliko odmaknjen od podlage. V takem stanju torej na ravni podlagi nalegata zgolj prednji in zadnji del oz. rep smučke.

Temu primerno sta usločena tudi omenjena robnika, ki sta torej po eni strani v skladu s smučko v neobremenjenem stanju usločena v smeri v stran od podlage, razen tega pa sledita tudi obliki drsne površine smučke, zato sta zlasti na prednjem in zadnjem delu smučke ali podobne drsalne priprave v skladu z zoženjem v omenjenih delih usločena v smeri drug proti drugemu. Zahvaljujoč takšni zasnovi drsne površine v kombinaciji z robnikoma je pri smučki na vsaki strani drsne površine, torej zahvaljujoč vsakemu od robnikov, dobljen takoimenovan stranski lok, s katerim je pravzaprav omogočena vodljivost v smislu spreminjanja smeri, in sicer s pomočjo nagibanja smučke okoli njene vzdolžne osi ob sočasnem obremenjevanju le-te v smeri proti podlagi.

Strokovnjaku s tega področja je popolnoma razumljivo, da so geometrijske karakteristike omenjenega stranskega loka v neposredni zvezi z lastnostmi smučke ali podobne drsalne priprave v smislu vodljivosti le-te. Tako je torej pri smučki z izrazitejšim stranskim lokom in torej bolj usločenima robnikoma s pomočjo ustreznega nagibanja smučke okoli njene vzdolžne osi ob sočasni obremenitvi

nedvomno lažje in bolj zanesljivo celo pri manjši hitrosti realizirati zavoje razmeroma majhnega radiusa ukrivljenosti kot pri tisti z manj izrazitim stranskim lokom.

V smislu zagotovitve kar najboljše vodljivosti smučke ali podobne priprave torej obstaja potreba po tem, da bi bila razlika med vsakokratno razdaljo med robnikoma v osrednjem delu smučke ter vsakokratnima razdaljama med robnikoma v prednjem in zadnjem delu smučke karseda velika.

Pričujoči izum torej temelji na problemu, kako pri smučki, prirejeni za v stroki običajen način pritrditve smučarskih vezi oz. smučarskega čevlja, brez prigraditve vsakršnih dodatnih delov zagotoviti ustrezno usločenost robnikov v smislu realizacije takoimenovanega stranskega loka in torej doseči kar največjo razliko med vsakokratno širino med robnikoma v osrednjem delu ter vsakokratnima širinama med robnikoma v prednjem in zadnjem delu, hkrati pa pri tem zagotoviti karseda majhno torzijsko deformabilnost smučke, zlasti njenega prednjega in zadnjega dela.

Obstaja že vrsta smučk različnih proizvajalcev, ki so po eni strani realizirane v skladu z uvodoma obravnavanimi osnovnimi izhodišči, po drugi strani pa s prednjim delom in repom razmeroma velike širine, s čimer naj bi bil na osnovi ustrezne usločenosti robnikov realiziran ustrezen, dovolj izrazit stranski lok. Razlog za tako veliko širino prednjega in zadnjega dela tiči predvsem v tem, da je najmanjša možna širina osrednjega dela smučke navzdol omejena zaradi same namestitve smučarske vezi in pritrditve smučarskega čevlja ter s tem vzpostavitve ustrezne povezave smučke z vsakokratnim uporabnikom. Pri tovrstnih rešitvah je torej izrazitejši stranski lok dobljen z razširitvijo prednjega in zadnjega dela

smučke pri izhodiščni, najmanjši možni širini osrednjega dela smučke, prirejeni v stroki običajnim načinom pritrditve smučarskih vezi oz. smučarskega čevlja na smučko. Tovrstne rešitve se v primerjavi s prej znanimi sicer odlikujejo po boljši vodljivosti v zavojih razmeroma majhnega radiusa, izpeljanih po robnikih in pri razmeroma majhni hitrosti, hkrati pa so - zahvaljujoč razširjenima prednjemu in zadnjemu delu nekoliko težje in prostorninsko obsežnejše. Po drugi strani pa je bil z razširitvijo sprednjega dela in repa neizogibno generiran nov problem, in sicer problem torzijske deformabilnosti razširjenih območij, ki je zaradi načina obremenitve še zlasti pereč v prednjem delu. Povečanje širine prednjega in zadnjega dela smučke namreč po eni strani pomeni povečanje ročice sile na robniku, ki se pojavi pri izvajanju zavoja. Razširjen vsakokrat prednji oz. zadnji del smučke, kot rečeno sploščenega pravokotnega prečnega prereza, je na ta način izpostavljen občutno večji torzijski deformabilnosti. Torzijske deformacije prednjega dela smučke predstavljajo enega od pomembnejših vzrokov za pojav oddrsavanja smučke v zavoju, med oddrsavanjem pa zaradi neravnosti podlage pride tudi do vibracij, ki še dodatno poslabšajo razmere. Posledica tega je nezmožnost natančnega vodenja smučke ali podobne drsalne priprave v zavoju.

Pričujoči izum se torej ukvarja s smučko ali podobno drsalno pripravo, ki je na spodnji, proti podlagi obrnjeni strani opremljena z drsno površino, ob kateri sta nameščena robnika, na nasprotni strani oz. na zgornji površini pa je na smučko s pomočjo ustreznih priprav na ustrezen način pritrdljiv smučarski čevelj, in sicer v osrednjem delu smučke, v katerem je za takšno pritrditev poleg zadostne debeline na voljo tudi zadostna širina, razen tega pa je prednji del smučke ustrezne debeline in širine na zgornji površini in v območju robnikov, še zlasti njegov skrajni konec, ukrivljen v smeri v stran od podlage, medtem ko je zadnji del oz. rep smučke prav tako ustrezne debeline in širine na zgornji površini v območju robnikov prednostno

zasnovan z zoženim skrajnim koncem. Za rešitev po izumu je značilno da je tista širina osrednjega dela smučke ali podobne drsalne priprave, ki ustreza razdalji med robnikoma ob drsni površini, manjša od širine osrednjega dela na zgornji površini smučke, predvideni za pritrditev smučarskih vezi in s tem smučarskega čevlja. Tako je pri smučki po izumu širina zgornje površine osrednjega dela vsaj za 3%, najbolj prednostno pa za vsaj 10% večja od razdalje med robnikoma v osrednjem delu smučke. Nadalje je pri prednostni izvedbi debelina osrednjega dela smučke občutno, namreč vsaj za 50%, večja bodisi od debeline prednjega dela smučke ali od debeline repa oz. pri najbolj prednostni izvedbi kar od obeh, torej od debeline prednjega dela in repa hkrati. Pri tem oz. temu ustrezno je naklonski kot vsakokratne, ob pripadajočem robniku nahajajoče se bočne ploskve, in sicer glede na ravnino, ki je pravokotna glede na podlago, vzdolž smučke - torej med repom in prednjim delom ali obratno - spremenljiv ali celo nespremenljiv. Pri tem je omenjeni kot lahko bodisi zvezno ali celo nezvezno spremenljiv.

Izum bo v nadaljevanju podrobneje obrazložen na osnovi primera izvedbe, prikazanega na priloženi skici, pri čemer kažejo

- sl. 1 primer izvedbe smučke, prikazan v perspektivi,
- sl. 2 shematično prikazano smučko ali podobno drsalno pripravo po izumu,
- sl. 3 smučko ali podobno drsalno pripravo v prerezu v ravnini III - III po sl. 1,
- sl. 4 smučko ali podobno drsalno pripravo v prerezu v ravnini IV - IV po sl. 1, in
- sl. 5 smučko ali podobno drsalno pripravo v prerezu v ravnini V - V po sl. 1.

Tudi v pričujočem primeru je smučka izvedena kot vitek, elastičen podolgovrat nosilec, zlasti pa enovito in brez vsakršnih dodatnih delov.

Smučka (sl. 1) v osnovi sestoji iz osrednjega dela 1, prednjega dela 2 in repa 3. Na spodnji strani, ki je med uporabo obrnjena proti vsakokratni podlagi, je smučka opremljena z drsno površino 4, ki se nahaja med robnikoma 5, 6.

Na zgornji površini 7, obrnjeni v stran od podlage, je v osrednjem delu 1 na smučko namestljiva ustrezna (na skici neprikazana) priprava, namreč takoimenovana smučarska vez, ki omogoča ustrezno vpetje na skici prav tako neprikazanega smučarskega čevlja ter s tem vzpostavitv ustrezne povezave med smučko in vsakokratnim uporabnikom.

Širina zgornje površine 7 je na sl. 2 in 3 označena z A in ustreza pogojem, ki jih narekujejo doslej znani in v stroki običajni oz. uveljavljeni načini pritrdjevanja smučarskih čevljev na smučko. Razen tega je debelina osrednjega dela 1 na skici označena z $D1$.

Skrajni, koničasto zaključen konec 2' prednjega dela 2 smučke je ukrivljen v smeri v stran od podlage. Širina B prednjega dela 2 na zgornji površini 7 v splošnem vsaj približno ustreza širini b prednjega dela 2 na nasprotni strani, torej razdalji med robnikoma 5, 6, nameščenima ob drsni površini 4. Debelina prednjega dela 2 je na skici označena z $D2$.

Podobno pri repu 3, katerega skrajni konec 3' je običajno zožen, širina C repa 3 na zgornji površini 7 v splošnem vsaj približno ustreza širini c repa 2 na nasprotni strani, torej razdalji med robnikoma 5, 6, nameščenima ob drsni površini 4. Debelina repa je na skici označena z $D3$.

Iz omenjene fizikalno-geometrijske zasnove je razvidno, da je pri najmanjši možni širini A osrednjega dela 1 v splošno možno zagotoviti ustrezen stranski lok (usločenost robnikov 5, 6 v ravnini, ki je koplanarna z drsno površino 4) s povečanjem širin B in b prednjega dela 2 ter širin C in c repa 3 smučke. S tem pa se seveda - kot je bilo omenjeno pri obravnavi obstoječih rešitev iz stanja tehnike - pojavi pereč problem torzijske deformabilnosti v razširjenih območjih.

Po izumu je razdalja a med robnikoma 5, 6 ob drsni površini 4 v osrednjem delu 1 na spodnji strani smučke manjša, prednostno celo bistveno manjša od omenjene širine A na zgornji površini 7 smučke. S tem je na presenetljivo enostaven in povsem nenavaden način dosežen izjemen efekt, da se stranska loka, ki ju tvorita ustrezno usločena robnika 5, 6, pomakneta drug proti drugemu, kar pa ima za posledico očitno zoženje smučke v območju prednjega dela 2 in repa 3. S tem je brez vsakršnih dodatkov pri smučki vsakokrat zagotovljen izrazit stranski lok, pri čemer širina A zgornje površine 7 osrednjega dela smučke ostane popolnoma nespremenjena, kar pomeni, da je smučka povsem primerna za vse načine pritrjevanja smučarskih vezi, kakršni so bili doslej znani in v stroki običajni.

Omenjena rešitev je zlasti prednostna v primeru, če je debelina $D1$ osrednjega dela 1 občutno večja od debeline $D2$ prednjega dela 2 oz. debeline $D3$ repa 3. Na ta način je lahko kljub nespremenjeni širini A zgornje površine 7 osrednjega dela 1 širina a na spodnji strani, torej razdalja med robnikoma 5, 6 ob drsni površini 4, izjemno majhna, kar pomeni, da je ustrezno usločenost robnikov 5, 6 oz. ustrezen stranski lok, možno zagotoviti že ob resnično majhnih širinah B oz. b ter C oz. c prednjega dela 2 in repa 3 smučke.

Temu primerno sta za ustrezen kot φ glede na ravnino, ki je pravokotna glede na drsno površino 4, nagnjeni bočni ploskvi 8, 9 ob robnikih 5, 6. Omenjeni kot φ je vzdolž smučke, torej med repom 3 in prednjim delom 2 (ali obratno), v splošnem lahko tudi spremenljiv, in sicer v skladu z izbiro širin A , B , C oz. a , b , c in v odvisnosti od debelin $D1$, $D2$, $D3$. Možne so izvedbe, pri katerih se omenjeni kot φ lahko spreminja bodisi zvezno ali celo nezvezno.

Razen tega ima povečevanje debeline $D1$ v osrednjem delu 1 smučke pri upogibanju smučke okoli tiste prečne osi, ki je vzporedna s podlago, za posledico premik vzdolžne nevtralne osi v smeri stran od podlage. Zahvaljujoč omenjenemu fenomenu so sicer neizogibne tlačne obremenitve na zgornji površini 7 v osrednjem delu 1 smučke občutno manjše. Razen tega so s povečevanjem debeline $D1$ osrednjega območja 1 pri smučki po sebi dobljene določene prednosti v zvezi z višino namestitve smučarskega čevlja, ki jih sicer omogočajo edinole posebni dodatki (takoimenovane *platforme*).

Na ta način je torej pri smučki, prirejeni za v stroki običajen način pritrditve smučarskega čevlja in brez vsakršnega poseganja v zahtevano širino A na zgornji površini 7 osrednjega dela 1 ter vsekakor tudi brez prigraditve vsakršnih dodatnih delov, zagotovljena ustrezna usločenost robnikov 5, 6 v smislu realizacije takoimenovanega stranskega loka. S tem se je dalo doseči kar največjo razliko med širino a med robnikoma 5, 6 v osrednjem delu 1 ter širinama b oz. c med robnikoma 5, 6 v prednjem delu 2 oz. zadnjem delu oz. repu 3 smučke ter pri tem zagotoviti karseda majhno torzijsko deformabilnost smučke, zlasti njenega prednjega dela 2 in zadnjega dela 3.

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PATENTNI ZAHTEVKI

1. Smučka ali podobna drsalna priprava, ki je na spodnji, proti podlagi obrnjeni strani opremljena z drsno površino (4), ob kateri sta nameščena robnika (5, 6), na nasprotni strani oz. na zgornji površini (7) pa je na smučko s pomočjo ustreznih priprav, zlasti smučarskih vezi, na ustrezen način pritrldljiv smučarski čevlji, in sicer v osrednjem delu (1) smučke, v katerem je poleg zadostne debeline ($D1$) na voljo zadostna širina (A) za omenjeno pritrditev, razen tega pa je prednji del (2) debeline ($D2$) ter širine (B) na zgornji površini (7) in (b) v območju robnikov (5, 6), zlasti njegov skrajni konec (2'), ukrivljen v smeri vstran od podlage, medtem ko je zadnji del oz. rep (3) debeline ($D3$), širine (C) na zgornji površini (7) oz. (c) v območju robnikov (5, 6) prednostno zasnovan z zoženim skrajnim koncem (3'), *označena s tem*, da je tista širina (a) osrednjega dela (1) smučke ali podobne drsalne priprave, ki ustreza razdalji med robnikoma (5, 6) ob drsni površini (4) v osrednjem delu (1) smučke, manjša od širine (A) osrednjega dela (1) na zgornji površini (7) smučke, predvideni za pritrditev smučarskega čevlja na smučko s pomočjo ustreznih pritrdilnih sredstev, zlasti smučarskih vezi.

2. Smučka po zahtevku 1, *označena s tem*, da je širina (A) zgornje površine (7) osrednjega dela vsaj za 3% večja od razdalje (a) med robnikoma (5, 6) v osrednjem delu (1) smučke.

3. Smučka po zahtevku 1 ali 2, *označena s tem*, da je širina (A) zgornje površine (7) osrednjega dela vsaj za 10% večja od razdalje (a) med robnikoma (5, 6) v osrednjem delu (1) smučke.

4. Smučka ali podobna drsalna priprava po kateremkoli od predhodnih zahtevkov, *označena s tem*, da je debelina ($D1$) osrednjega dela (1) smučke občutno, namreč vsaj za 50%, večja od debeline ($D2$) prednjega dela (2) smučke.
5. Smučka ali podobna drsalna priprava po kateremkoli od zahtevkov 1 - 3, *označena s tem*, da je debelina ($D1$) osrednjega dela (1) smučke občutno, namreč vsaj za 50%, večja od debeline ($D3$) repa (3) smučke.
6. Smučka ali podobna drsalna priprava po kateremkoli od zahtevkov 1 - 3, *označena s tem*, da je debelina ($D1$) osrednjega dela (1) smučke občutno, namreč vsaj za 50%, večja tako od debeline ($D3$) zadnjega dela (3) kot tudi od debeline ($D2$) prednjega dela (2) smučke.
7. Smučka ali podobna drsalna priprava po kateremkoli od predhodnih zahtevkov, *označena s tem*, da je naklonski kot (φ) vsakokratne bočne ploskve (8, 9) glede na ravnino, ki je pravokotna glede na podlago, vzdolž smučke - torej med repom (3) in prednjim delom (2) ali obratno - spremenljiv.
8. Smučka ali podobna drsalna priprava po kateremkoli od zahtevkov 1 - 7, *označena s tem*, da je naklonski kot (φ) vsakokratne bočne ploskve (8, 9) glede na ravnino, ki je pravokotna glede na podlago, vzdolž smučke - torej med repom (3) in prednjim delom (2) ali obratno - zvezno spremenljiv.
9. Smučka ali podobna drsalna priprava po kateremkoli od zahtevkov 1 - 7, *označena s tem*, da je naklonski kot (φ) vsakokratne bočne ploskve (8, 9) glede na ravnino, ki je pravokotna glede na podlago, vzdolž smučke - torej med repom (3) in prednjim delom (2) ali obratno - nezvezno spremenljiv.

10. Smučka ali podobna drsalna priprava po kateremkoli od zahtevkov 1 - 6, *označena s tem*, da je naklonski kot (φ) vsakokratne bočne ploskve (8, 9) glede na ravnino, ki je pravokotna glede na podlago, vzdolž smučke - torej med repom (3) in prednjim delom (2) ali obratno - vseskozi nespremenljiv.

Za:

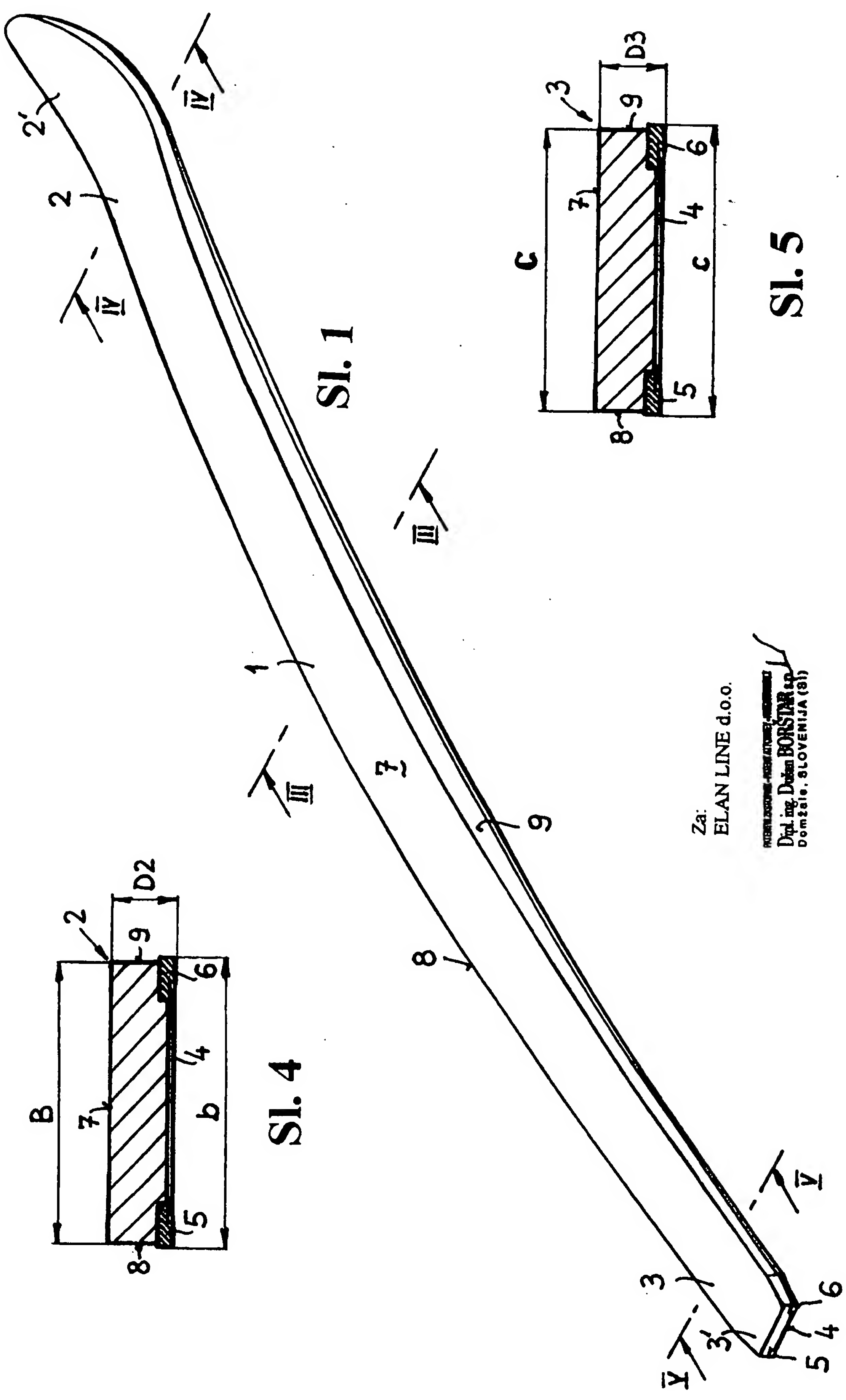
ELAN LINE d.o.o.

POSREDOVATELSTVO ZAPOSREDOVANJE PATENTNIH STORIL
Dipl. ing. Džan BORŠTAR s.p.
Domžale, SLOVENIJA (SI)

IZVLEČEK

Pričujoči izum temelji na problemu, kako pri smučki, prirejeni za v stroki običajen način pritrditve smučarskega čevlja na zgornji površini (7) v osrednjem delu (1) smučke in brez prigraditve vsakršnih dodatnih delov zagotoviti ustrezno usločenost robnikov (5, 6) v smislu realizacije takoimenovanega *stranskega loka* in torej doseči kar največjo razliko med širino (a) med robnikoma (5, 6) v osrednjem delu (1) in širinama (b oz. c) med robnikoma (5, 6) v prednjem delu (2) oz. zadnjem delu (3) ter pri tem zagotoviti karseda majhno torzijsko deformabilnost smučke, zlasti njenega prednjega dela (2) in zadnjega dela (3). Smučka ali podobna drsalna priprava je na spodnji, proti podlagi obrnjeni strani opremljena z drsno površino (4), ob kateri sta nameščena robnika (5, 6), na nasprotni strani oz. na zgornji površini (7) pa je na smučko s pomočjo na skici neprikazanih priprav, zlasti ustreznih smučarskih vezi, na ustrezen način pritrdljiv prav tako neprikazan smučarski čevelj, in sicer v osrednjem delu (1) debeline ($D1$), v katerem mora biti vsaj na zgornji površini (7) na voljo zadostna širina (A) za omenjeno pritrditev. Razen tega pa je prednji del (2) debeline ($D2$) ter širine (B) na zgornji površini (7) in (b) v območju robnikov (5, 6), zlasti njegov skrajni konec (2'), ukrivljen v smeri vstran od podlage, medtem ko je zadnji del oz. rep (3) debeline ($D3$), širine (C) na zgornji površini (7) oz. (c) v območju robnikov (5, 6) prednostno zasnovan z zoženim skrajnim koncem (3'). Po izumu je tista širina (a) osrednjega dela (1) smučke ali podobne drsalne priprave, ki ustreza razdalji med robnikoma (5, 6) ob drsni površini (4) v osrednjem delu (1) smučke, manjša, prednostno celo bistveno manjša od širine (A) osrednjega dela (1) na zgornji površini (7) smučke, predvideni za pritrditev smučarskega čevlja na smučko s pomočjo ustreznih pritrdilnih sredstev, zlasti smučarskih vezi.

(Sl. 1)



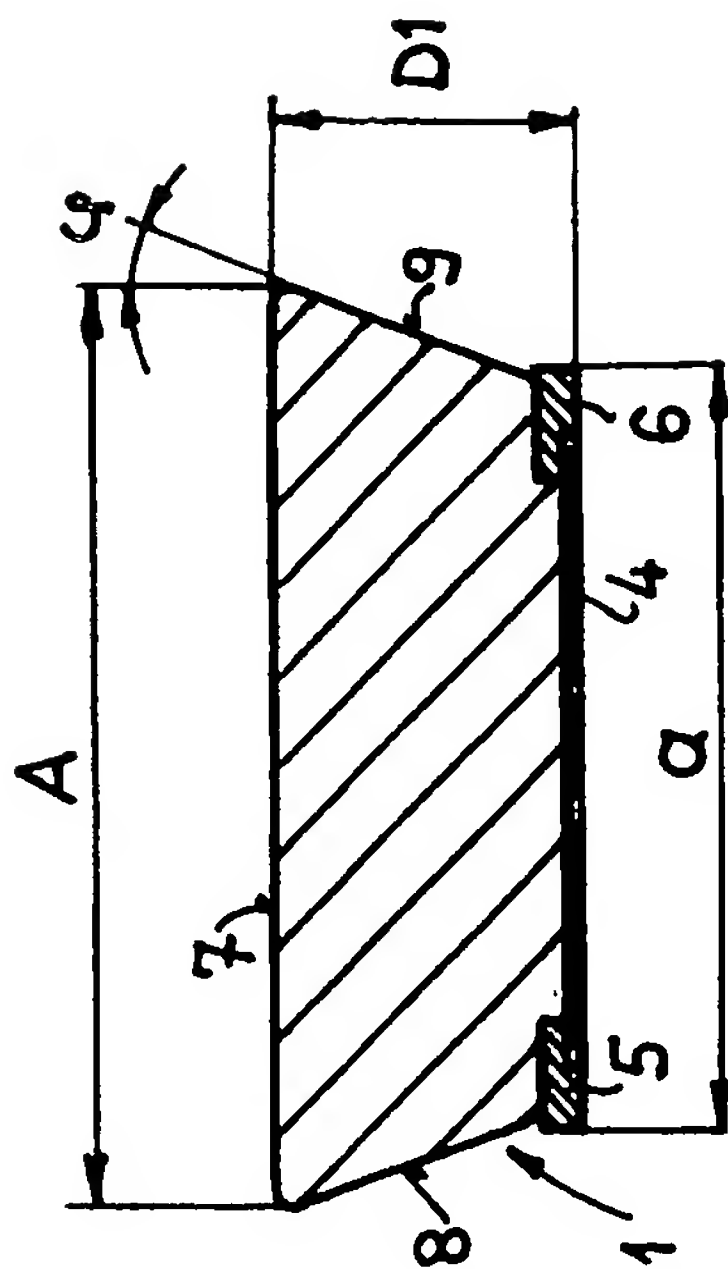
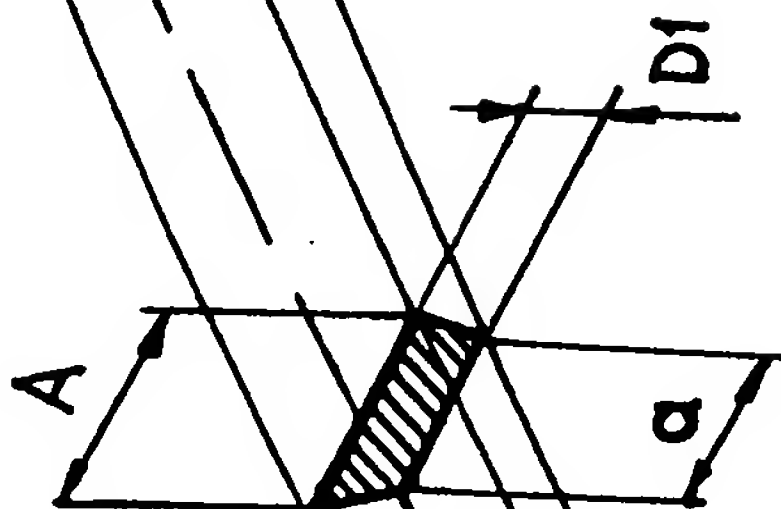
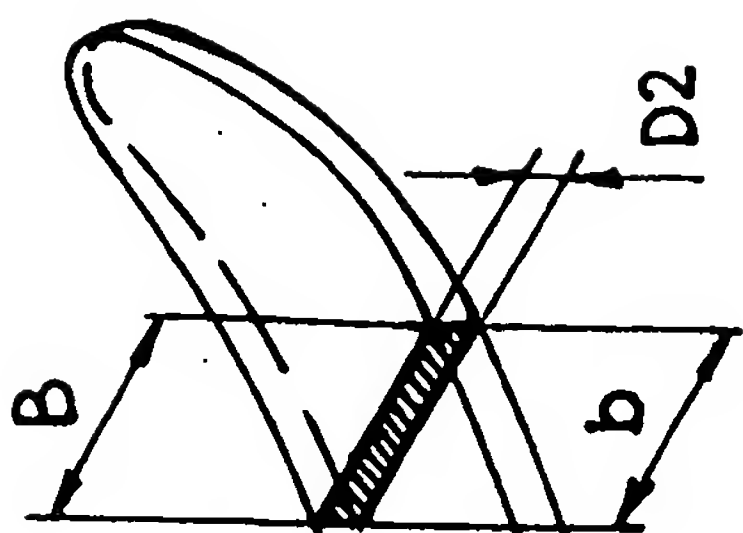
Sl. 4

Sl. 1

Sl. 5

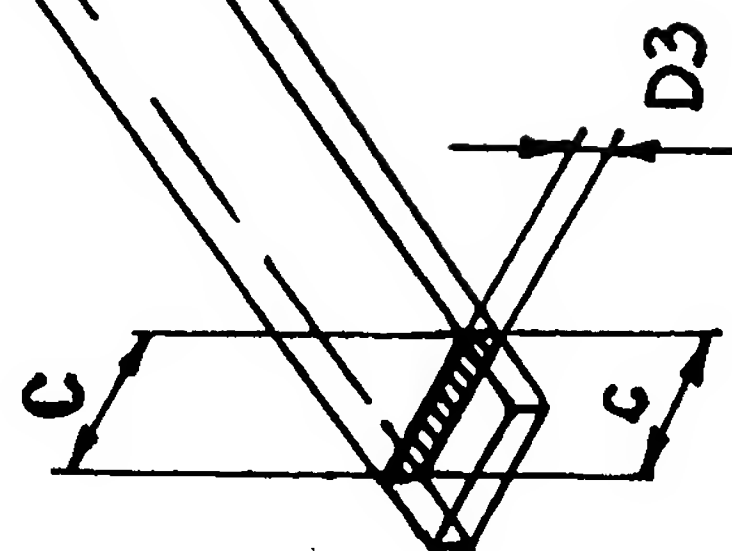
Za:
ELAN LINE d.o.o.

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Sl. 3

Sl. 2



Za:
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POSREDOVANJE V PROMETU NEPOKRETNOSTI
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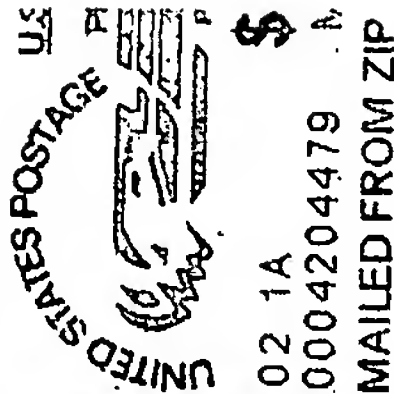
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